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April 4, 2005

Project No. 08CH.51834.05

Mr. Kent Huth
County of San Diego, Department of Environmental Health
Land & Water Quality Division
Site Assessment and Mitigation Program (SAM)
P.O. Box 129261
San Diego, CA 92112-9261

Subject: Sensitive Receptor Survey (SRS)

Former Chevron Service Station #9-1834

4175 Voltaire Street

San Diego, California 92107

Unauthorized Release (UAR) Case #H12455-001

Dear Mr. Huth:

On behalf of Chevron Environmental Management Company (Chevron), SECOR International, Inc. (SECOR) submits this report summarizing the sensitive receptor survey (SRS) performed for the subject site. The SRS includes consideration of both human and ecological receptors, including water supply wells, groundwater and surface water bodies. Figure 1 shows the site location with the locations of identified potential sensitive receptors; Figure 2 shows a vicinity map identifying current adjoining properties.

### PURPOSE AND SCOPE

The purpose of this SRS is to identify and provide information on potential sensitive human and ecological receptors and associated exposure routes to support risk-based corrective action decisions for the subject site in accordance with guidance provided by the SAM Manual<sup>1</sup>. Potential sensitive receptors include:

Potential Sensitive Receptors				
Human Receptors <sup>a.</sup> Ecological Receptors <sup>b.</sup>				
Water supply wells (drinking water)	Water supply wells (irrigation)			
Residences	Surface waters			
Schools	Wetlands			
Day care facilities	Sensitive aquifers <sup>c.</sup>			
Senior centers	Sensitive wildlife habitat d.			
Nursing homes	Storm Drains			
Rehabilitation facilities				
Hospitals and clinics				
Convalescent facilities				
Retirement facilities				
Homeless shelters or gathering places				
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a. Facilities with potentially sensitive human populations

b. Includes both non-human potential receptors and key potential exposure routes to human receptors

c. As defined by the State of California, Department of Water Resources (DWR) and shown on California Water Authority maps

d. As defined on San Diego County Planning Department maps; information available at SanGIS website

<sup>&</sup>lt;sup>1</sup> County of San Diego, Department of Environmental Health, Land & Water Quality Division, Site Assessment and Mitigation Program Manual, revised February 18, 2004.

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The three main exposure routes relevant to leaking underground fuel tank sites are:

- Inhalation of vapor emanating from LPH<sup>2</sup>:
- Inhalation of vapor emanating from soil and/or groundwater contamination;
- Ingestion of contaminated soil or groundwater;

Additional potential exposure routes may include but are not limited to:

- Accumulation of flammable vapors and toxic substances in utility vaults and storm drain catch basins:
- Migration of contaminated groundwater to surface water bodies and associated sensitive ecological habitat.

This SRS includes site and vicinity surveys conducted by SECOR personnel on foot and by driving, review of files and maps from applicable agencies, and collection and evaluation of public database records compiled by public agencies or database vendors. SECOR has attempted to field-verify<sup>3</sup> reported locations of water supply wells and other key features of interest. As such, this SRS is based on readily-available information as that term is defined in American Society for Testing and Materials (ASTM) Practice E1527-00, and represents a thorough, though not exhaustive, search for potential sensitive receptors. Photographs of key features are included as an attachment.

The scope elements and key information sources are summarized as follows.

SRS Scope Elements				
Task	Minimum Search Distance	Information Source		
Neighborhood reconnaissance for	¼ mile	SECOR field reconnaissance - on foot		
potential sensitive receptors	½ mile (downwind direction <sup>a</sup> )	SECOR field reconnaissance – driving supplemented as needed by on-foot survey		
Neighborhood reconnaissance for water	1/4 mile	SECOR field reconnaissance - on foot		
supply wells	½ mile <sup>6.</sup>	SECOR field reconnaissance – driving supplemented as needed by on-foot survey		
Water supply wells from agency information	1 mile	County of San Diego, Department of Planning & Land Use		
	1 mile	United States Geological Survey (USGS)		
	1 mile	California Department of Water Resources (DWR)		
Surface waters, wetlands, sensitive aquifers	1 mile	San Diego County Water Authority <sup>c</sup> (CWA) maps		
Surface waters, wetlands, sensitive habitat, watershed management areas	1 mile	CRWQCB Water Quality Control Plan and USGS maps		
Clean Water Act §303d rivers, beaches, bays, estuaries, lakes	1 mile	SanGIS database		

<sup>&</sup>lt;sup>2</sup> LPH = liquid-phase petroleum hydrocarbons, also referred to as light non-aqueous phase liquid (LNAPL).

<sup>3</sup> Field verification consists of observation from public rights-of-way.

SRS Scope Elements				
Task	Minimum Search Distance	Information Source		
Flood zones	½ mile	SanGIS database		
Potential sensitive receptors	½ mile <sup>b.</sup>	SECOR field reconnaissance – driving supplemented as needed by on-foot survey		
	1 mile	Yahoo!™ Yellow Pages		
Schools, hospitals	1 mile	SanGIS database		
	1 mile	Thomas Bros. maps		
	1 mile	Yahoo!™ Yellow Pages		
Field confirmation of database information	½ mile	SECOR field reconnaissance		

a. Data on prevailing wind direction is available for many San Diego County locations from the Western Regional Climate Center at www.wrcc.dri.edu

Once potential sensitive receptors have been identified, a screening level evaluation of exposure routes is conducted to identify those potential receptors that may have a complete exposure pathway. As discussed in Section 6 of the SAM Manual, a threat to a receptor may exist if there is a complete exposure pathway; otherwise, the receptor is not at risk. A pathway is considered complete if there is a hazardous substance release, an exposure route, and a potential receptor.

Migration of hazardous substances in the subsurface is controlled by the properties of the chemical, and by geological and hydrological factors. For example, vapor migration is controlled by source concentrations, chemical properties, soil permeability and pressure gradients. LPH migration is generally downwards through permeable soil, but LPH may move laterally along the top of fine-grained perching layers or along sand lenses or backfill around buried utilities. Dissolved phase hydrocarbons generally migrate downwards to groundwater, then migrate in the direction of groundwater flow.

A potential sensitive receptor may exist near a site, but may not be at risk from substances released at the site owing to an incomplete exposure pathway. For example, if impacted groundwater exists below the site, it would not affect the indoor air of potential receptors located in a hydrologically upgradient or cross-gradient direction from the site; therefore, the exposure pathway would be incomplete for that potential receptor. A supply well located upgradient or cross-gradient from the site may not represent a complete pathway if the capture zone of the well does not extend to the site.

The screening level exposure route assessment eliminates those potential receptors with incomplete exposure pathways. Receptors with potential complete exposure pathways are retained for further more-rigorous evaluation, which is beyond the scope of this SRS.

b. The minimum search distance should be expanded in the downgradient direction in areas with private supply wells.

c. San Diego County Water Authority (CWA) service area includes a strip of land extending from the coast 18 miles intand, and from MCB Camp Pendleton on the north to the Mexican border on the south. If the site lies outside the CWA service area, the CWA map is not applicable.

### **CURRENT SITE FEATURES**

The features relevant to evaluation of potential exposure routes from the subject UAR site are as follows:

Site Features		
Current or former service station (dates of operation, if known)	Former (Approximately 1955 to 1996)	
Property size (acres)	0.3	
Current land use	Vacant	
Percent of property covered by buildings	0	
Percent of property covered by paving	0	
Percent of property unpaved or landscaped	100	
Surface topography (e.g. level, gently sloping, grade separations, adjacent to steep canyon, etc.)	Slopes towards the north	
Prevailing wind direction <sup>a</sup>	West, Northwest	
Storm water runoff direction (e.g. sheetflow south to street then to catch basin located, etc.)	North	
Domestic water provider	City of San Diego, Water Department	
Sewage disposal method	City of San Diego, Metropolitan Wastewater Department	
Subsurface utility vaults present <sup>b.</sup>	Water, cable television, telecommunications, traffic signal, and electrical utilities identified along the north eastern property boundary; and traffic signal control utilities located along the northwestern boundary. Cable television, traffic signal, electrical utilities, and a fire hydrant identified at the northern corner.	
a. Wind direction data are direction the wind is blowing from, no the Western Regional Climate Center website (http://wrcc.dr	of towards, as reported by the nearest airport monitoring station or i.edu/htmlfiles/westwinddir.html#CALIFORNIA).	
b. Investigation of locations and depths of site utilities is beyond	· ·	
Sources: SECOR International Incorporated, Site Review Doc		

Beneficial uses of groundwater and surface waters as specified by the California State Water Resources Control Board are summarized below:

San Diego Lower San Die	Hydrologic Basin ( ) Hydrologic Unit (9 ego Hydrologic Are go Hydrologic Sub	07.00) <sup>°</sup> ea (907.10)				
Beneficial Use	Groundwater	Surface Water	Coastal Waters			
Municipal and Domestic Supply	0	+				
Agricultural Supply	Χ	Χ	——			
Industrial Service Supply	X	Χ				
Industrial Process Supply	X		-++			
Freshwater Replenishment	<u></u>	mm	7 			
Ground Water Recharge	**		**			
Hydropower Generation						
Rec-1 (Contact Water Recreation)		Χ	X			
Rec-2 (Non-contact Water Recreation) X X						
Warm Freshwater Habitat		Χ				
Cold Freshwater Habitat		X	<del>-</del> -			

San Diego Hydrologic Basin (900.00)
San Diego Hydrologic Unit (907.00)
Lower San Diego Hydrologic Area (907.10)
Mission San Diego Hydrologic Subarea (907.11

Beneficial Use	Groundwater	Surface Water	Coastal Waters
Wildlife Habitat		X	X
Preservation of Biological Habitats of Special Significance			
Rare, Threatened, or Endangered Species		X	X
Navigation		÷+	
Commercial and Sport Fishing			Χ
Estuarine Habitat			X
Marine Habitat	~~		X
Aquaculture	***		***
Migration of Aquatic Organisms	***		X
Spawning, Reproduction, and/or Early Development	ma	proba	
Shellfish Harvesting		Na.48	X

Source:

California State Water Resources Board and Regional Water Quality Control Board, San Diego, Region, "Water Quality Control Plan, San Diego Basin (9), 1994".

X = Existing Beneficial Use

+ = Excepted from Municipal

o = Potential Beneficial Use

-- = No Beneficial Use

### SUBSURFACE IMPACTS

Site assessment per SECOR records has revealed the following subsurface conditions at the subject site:

Subsurface Conditions and Impacts			
Approximate depth of soil impact 2 to 65 feet below ground surface (bgs)			
Soil impact crosses site boundary?/direction?	Not Detected		
Dissolved hydrocarbon plume offsite?/direction?	Yes/Northeast		
Maximum soil benzene concentration	on 180 milligrams per kilogram (mg/kg)		
Maximum soil MTBE concentration 1 mg/kg			
Depth to groundwater	49.92 to 53.33 feet bgs		
Groundwater impacted? Yes			
LPH present?/LPH offsite?  Yes/Not Detected			
History of LPH in utility vaults?	Not Reported		

**Sources:** SECOR International Incorporated, 2005, Chevron Quarterly Groundwater Monitoring Report (Third and Fourth Quarters 2004), dated February 16, 2004.

The most recent groundwater sample analytical results indicate the following approximate maximum dissolved concentrations:

Constituent	Concentration (micrograms per liter (µg/l))	Constituent Detected Offsite?
TPHg	62,000	Yes*
TPHd	Not Sampled	Not Sampled
Benzene	3,100	Yes*
Toluene	10,000	Yes*
Ethylbenzene	2,000	Yes*
Total Xylenes	11,000	Yes*
MTBE	210	Yes*
Other oxygenates	TBA 530	No

**Sources:** SECOR International Incorporated, 2005, Chevron Quarterly Groundwater Monitoring Report (Third and Fourth Quarters 2004), dated February 16, 2005.

### **SURVEY RESULTS**

Current land uses on adjoining properties<sup>4</sup> are shown on Figure 2 and include the following:

Current Site Neighbors					
Land Use	Name or Type of business	Direction from Site	Basement?	Across Street?	Down wind?
Commercial	The Pointe Companies	West Northwest	Not Observed	Yes	No
Commercial	7-11 Convenience Store	Northwest	Not Observed	Yes	No
Commercial	Little Italy Restaurant	North	Not Observed	Yes	No
Commercial	Perfect Polish Hair, Nails & Skin	North Northeast	Not Observed	Yes	Yes
Commercial	CJ's Catering	Northeast	Not Observed	Yes	Yes
Commercial	Furniture Repair & Upholstery	East Northeast	Not Observed	Yes	Yes
Commercial	Prime Market & Liquor Store	East	Not Observed	No	Yes
Residential	Multi -Unit Residential	South to West	Not Observed	Yes	No

<sup>&</sup>lt;sup>4</sup> Adjoining properties include those located across streets or alleys bordering the site.

<sup>\*</sup> Detected prior to the fourth quarter 2004.

Current residential properties identified during the survey include the following:

Residential Properties				
Quadrant	Approximate Distance from Site (feet)	Basement?	Down Gradient?	
North → East	200	Not Observed	Yes	
East → South	50	Not Observed	No	
South → West	50	Not Observed	No	
West → North	100	Not Observed	No	

Results of agency records review and database information are as follows:

Agency Records and Database Review					
ID#	Potential Sensitive Receptors	Address or APN	Distance from Site (miles)	Direction from Site	
Huma	n Receptors:				
1	Correia Junior High School	4302 Valeta Street	0,4	North Northeast	
2	YMCA	4390 Valeta Street	0.4	North Northeast	
3	Point Loma Community School	2128 Chatsworth Blvd	0.4	Southeast	
4	Ocean Beach Child Care Project	2031 Chatsworth Blvd	0.4	South Southeas	
5	Point Loma High School	2335 Chatsworth Blvd	0.5	East Southeast	
6	Tanita Family Day Care	2507 Chatsworth Blvd	0.6	East	
7	Loma Portal Elementary & Klassic Kids Loma Portal	3341 Browning Street	0.8	East	
8	Dana Elementary School & Day Care	1775 Chatsworth Blvd	0.6	South	
9	Silver Gate Elementary	1499 Venice Street	0.9	Southwest	
10	Oasis Early Learning Center	2069 Ebers Street	0.5	West Northwest	
11	Children's Energy Center	4689 Santa Monica Avenue	0,6	West	
12	Ocean Beach Elementary School & Child Development Center	4741 Santa Monica Avenue	0.7	West	
13	Sacred Heart of Ocean Beach Academy & Preschool	4895 Saratoga Avenue	0.8	West	
14	World of Wonders Preschool	2051 Sunset Cliffs Blvd.	0.7	West Northwest	

ID#	Potential Sensitive Receptors	Address or APN	Distance from Site (miles)		
15	Judy Palmer School	almer School 4735 Santa Cruz Avenue 0.9		West Southwes	
16	Loma Alta Children's School	4426 Mentone Street	0.6	North Northeas	
17	Barnard Elementary School	2930 Barnard Street	0.8	Northeast	
Wetla			0.8	North	
18	San Diego River and Floodway				
18	Floodway				
18	Floodway tive Aquifers:	None Identified Within Search	Distance)		

supply from the Colorado River via the California Aqueduct system.

Results of SECOR's site reconnaissance field survey are summarized below:

	Site Reconnaissance					
ID#	Potential Sensitive Receptors	Address or Location Distance from Site (miles)		Direction from Site		
	Human Receptors:					
1	Correia Junior High School	4302 Valeta Street	0.4	North Northeast		
2	YMCA	4390 Valeta Street	0.4	North Northeast		
3	Point Loma Community School	2128 Chatsworth Blvd	0.4	Southeast		
4	Ocean Beach Child Care Project	2031 Chatsworth Blvd	0.4	South Southeast		
5	Point Loma High School	2335 Chatsworth Blvd	0.5	East Southeast		
6	Tanita Family Day Care	2507 Chatsworth Blvd	0.6	East		

Site Reconnaissance					
D#	Potential Sensitive Receptors	Address or Location	Distance from Site (miles)	Direction fron Site	
7	Loma Portal Elementary & Klassic Kids Loma Portal	3341 Browning Street	0.8	East	
8	Dana Elementary School & Day Care	1775 Chatsworth Blvd	0.6	South	
9	Silver Gate Elementary	1499 Venice Street	0.9	Southwest	
10	Oasis Early Learning Center	2069 Ebers Street	0.5	West Northwes	
11	Children's Energy Center	4689 Santa Monica Avenue	0.6	West	
12	Ocean Beach Elementary School & Child Development Center	4741 Santa Monica Avenue	0.7	West	
13	Sacred Heart of Ocean Beach Academy & Preschool	4895 Saratoga Avenue	0.8	West	
14	World of Wonders Preschool	2051 Sunset Cliffs Blvd.	0.7	West Northwes	
15	Judy Palmer School	4735 Santa Cruz Avenue	0.9	West Southwes	
16	Loma Alta Children's School	4426 Mentone Street	0.6	North Northeas	
17	Barnard Elementary School	2930 Barnard Street	0.8	Northeast	
······································	Ecological Receptors:			regideren de ameliados mediatros antidos escendos diamentos mentrales antidas en al casa	
18	San Diego River and Floodway		0.8	North	
	Domestic Water Wells:		<del>!</del>		
	(No	ne Identified Within Search E	Distance)		
erienski processe	Agriculture/Irrigation Wells:		<u> </u>		

### SCREENING LEVEL EXPOSURE ROUTE ASSESSMENT

As discussed above, a threat to a potential receptor may exist if there is a complete exposure pathway. The potential receptors identified above have been evaluated in a screening level assessment to further identify those for which a more-rigorous evaluation of exposure pathways may be warranted.

The results of the screening level assessment are summarized below:

	Exposure Route Assessment				
ID #	Identified Potential Receptor	Distance from Site (miles)	Direction from Site	Assessment	Retain for Further Analysis?
1	Correia Junior High School	0.4	North Northeast	Crosswind and cross-gradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No
2	YMCA	0.4	North Northeast	Crosswind and cross-gradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No
3	Point Loma Community School	0.4	Southeast	Downwind and cross-gradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No
4	Ocean Beach Child Care Project	0.4	South Southeast	Crosswind and cross-gradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No
5	Point Loma High School	0.5	East Southeast	Downwind and cross-gradient of site. Due to distance, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No
6	Tanita Family Day Care	0.6	East	Although downwind and downgradient of site, unlikely to be impacted by potential vapor or groundwater plume based on the data collected and the distance from the site.	No
7	Loma Portal Elementary & Klassic Kids Loma Portal	8.0	East	Although downwind and downgradient of site, unlikely to be impacted by potential vapor or groundwater plume based on the data collected and the distance from the site.	No
8	Dana Elementary School & Day Care	0.6	South	Crosswind and cross-gradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No

	Exposure Route Assessment					
ID #	Identified Potential Receptor	Distance from Site (miles)	Direction from Site	Assessment	Retain for Further Analysis?	
9	Silver Gate Elementary	0.9	Southwest	Upwind and upgradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No	
10	Oasis Early Learning Center	0.5	West Northwest	Upwind and upgradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No	
11	Children's Energy Center	0.6	West	Upwind and upgradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No	
12	Ocean Beach Elementary School & Child Development Center	0.7	West	Upwind and upgradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No	
13	Sacred Heart of Ocean Beach Academy & Preschool	0.8	West	Upwind and upgradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No	
14	World of Wonders Preschool	0.7	West Northwest	Upwind and upgradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No	
15	Judy Palmer School	0.9	West Southwest	Upwind and upgradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No	
16	Loma Alta Children's School	0.6	North Northeast	Crosswind and cross-gradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No	
17	Barnard Elementary School	0.8	Northeast	Although downwind and downgradient of site, unlikely to be impacted by potential vapor or groundwater plume based on the data collected and the distance from the site.	No	
18	San Diego River and Floodway	0.8	North	Crosswind and cross-gradient of site. Due to distance and direction, unlikely to be impacted by potential vapor or groundwater plume based on data collected at the site.	No	

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#### CONCLUSIONS

SECOR has conducted a SRS for the subject site. Potential sensitive receptors have been identified from site and vicinity reconnaissance, agency records, and public database reports. SECOR has attempted to field-verify reported information from agencies and third parties. The identified potential sensitive receptors have been evaluated using a screening-level exposure route assessment to further identify those that may have a potentially complete exposure pathway for chemicals released at the subject site.

It is SECOR's professional opinion that there are no sensitive receptors of hydrocarbon chemicals released at the subject site.

If you have any questions, please contact the undersigned at (619) 296-6195.

Respectfully,

SECOR International Incorporated

Prepared By:

Approved By:

Melissa Garrett Staff Scientist Kimberly N. Thompson Associate Engineer

Figures:

Figure 1:

melissa Sanett

Site Location Map

Figure 2:

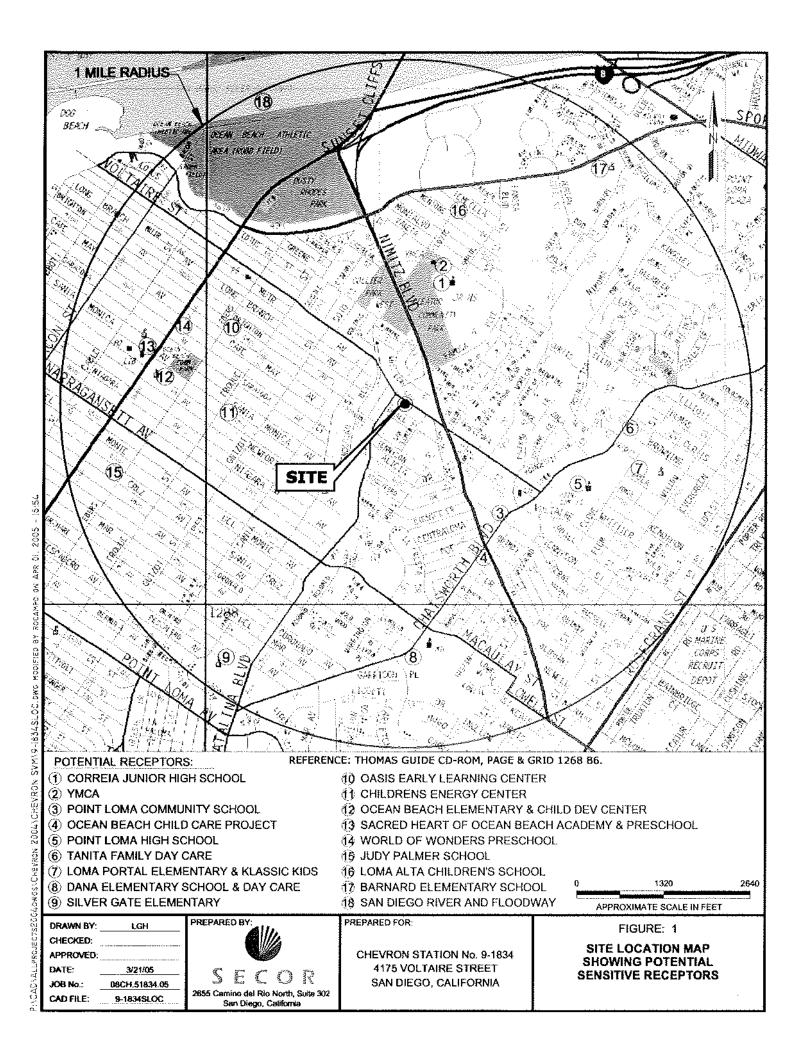
SanGIS Site Vicinity Map

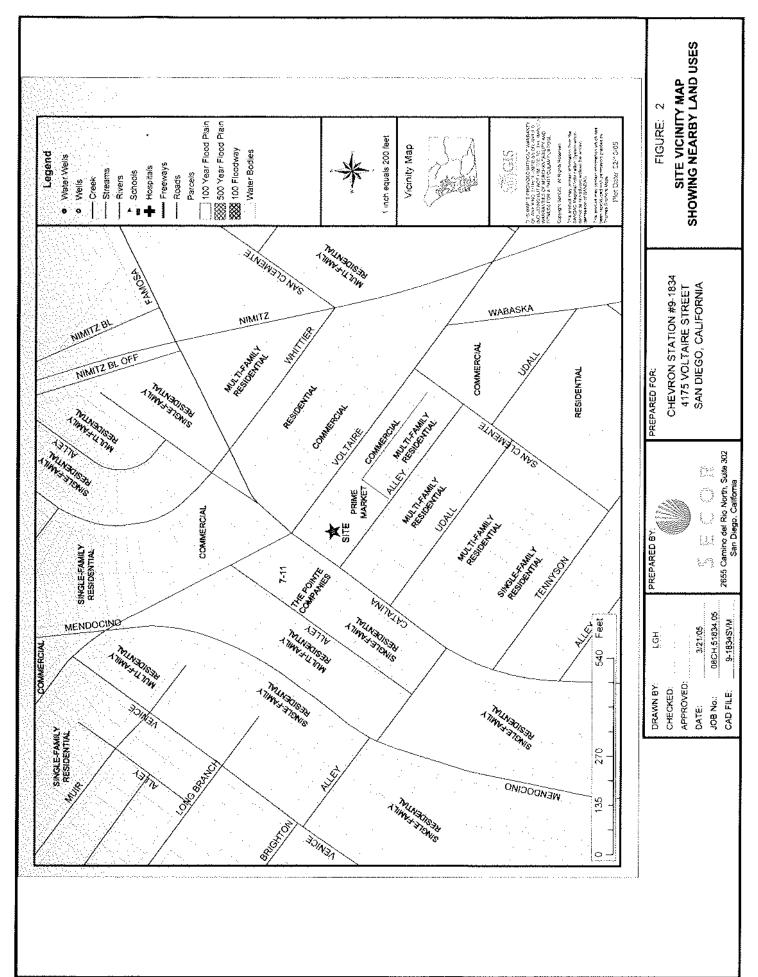
Attachments:

SECOR Photographic Record

cc: Mr. Eric Roehl, Chevron Environmental Management Company

## **FIGURES**







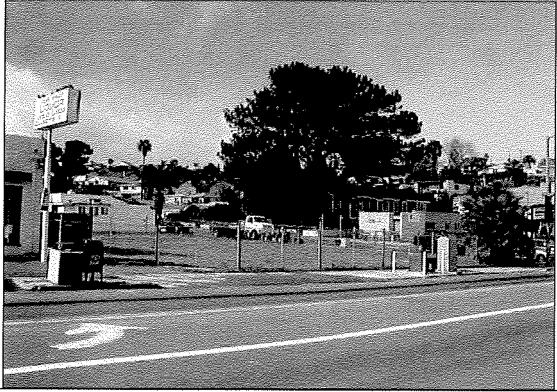
## SECOR PHOTOGRAPHIC RECORD

Client:	Chevron	Job Number:	08CH.51834.05
Subject Name:	Chauran Capitan Station #0 1004	I a a a tia a a	1175 Unkales Cha

Chevron Service Station #9-1834 Location: 4175 Voltaire Street San Diego, CA 92107

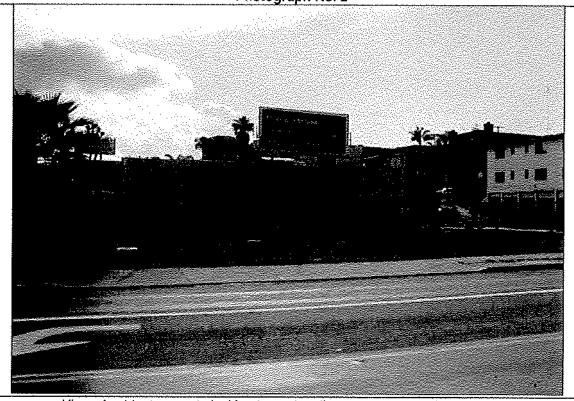
Photographer: Tim Barrett Date: February 22, 2005

Photograph No. 1



View of the subject property looking west.

### Photograph No. 2



View of subject property looking towards adjacent property to the southeast.

# SECOR PHOTOGRAPHIC RECORD

Client: Chevron Job Number: 08CH.51834.05

Subject Name: Chevron Service Station #9-1834 Location: 4175 Voltaire Street

San Diego, CA 92107

Photographer: Tim Barrett Date: February 22, 2005

Photograph No. 3



View from the subject property looking southwest toward the adjacent alley and multifamily residences.

Photograph No. 4

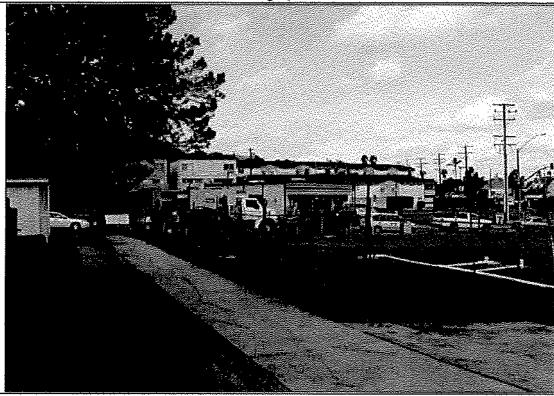


View looking towards the adjacent properties to the northwest across Catalina Boulevard.

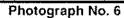
## SECOR PHOTOGRAPHIC RECORD

PHOTOGRAPHIC RECORD				
Client:	Chevron	Job Number:	08CH.51834.05	
Subject Name:	Chevron Service Station #9-1834	Location:	4175 Voltaire Street	
			San Dìego, CA 92107	
Photographer:	Tim Barrett	Date:	February 22, 2005	

Photograph No. 5



View from the subject property looking north from the alley toward the adjacent properties across Catalina Boulevard.





View from the subject property of the adjacent properties to the northeast across Voltaire Street.